Space Weather Forecast

Issued on Saturday, 03 December 2022 at 01:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Daily chance of Moderate flares. Slight chance G1 Minor Storms, mainly early day 2 or late day 4.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity is Low with common-class flares observed. The strongest of these was from the spotless area to the south of the new small sunspot on the northeast limb. A small flare was also observed at the same time in the large but mature, stable and open sunspot group in the southeast. There are three other regions on the Earth-facing disc, however these are all much smaller and simpler. No Earth-directed CMEs (Coronal Mass Ejections) occurred in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind was indicative of the fast solar winds from a coronal hole. Wind speeds have been Elevated to Strong. Total interplanetary magnetic field was generally weak. The north-south component also varied weakly. Geomagnetic activity was Quiet to Unsettled (Kp 2-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be Low, but with a chance of rising to Moderate with an ongoing potential for Moderate flares, primarily from the region in the southeast.

Solar Wind / Geomagnetic Activity: A slow coronal mass ejection from 29th Nov may arrive at Earth early on 4th +/- 9 hrs. Ongoing fast wind environment is expected to only gradually fade through the period easing to slightly elevated by the end of day 1 (3rd). The fast wind from coronal hole 53 may arrive at Earth from late day 4 (6th), with solar wind speeds reaching in the region of 500-600 km/s. Quiet to Unsettled with chance of Active intervals are expected through the period. Any coronal mass ejection arrival will bring the chance of a further spell of Active to G1/Minor Storm intervals from late day 1 (3rd) or more likely day 2 (4th), with the risk passing by day 3 (5th). Day 4 (6th) may see an early arrival of coronal hole 53-, with only a slight chance of G1/Minor storming due to being a negative feature.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to be at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	20	5	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	25	25	25
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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